Idaho Chemical Roundup
Chemical Storage

Introduction

School laboratories may house corrosive, flammable, reactive, and toxic materials, often stored close together. This can result in chemical accidents and spills requiring costly cleanup. Manage chemicals to prevent spills, uncontrolled reactions, and theft. By following best practices for chemical storage, schools can:

- ✓ Prevent spills.
- ✓ Prevent accumulation of unwanted stockpiles. By keeping track of what you have, you can ensure chemicals are used in a timely manner, and unneeded chemicals are removed.
- ✓ Save money. Disposing of expired materials, unlabeled chemicals, and spill cleanup materials can be expensive.

Best practices for chemical storage

Labeling

- ❑ Label all containers. Include chemical name, formula, expiration date, storage requirements, and primary hazards.
- ❑ Ensure labels are colorfast and permanent.
- ❑ Replace labels if they become damaged or faded.

Improperly labeled bottle. Labels should include chemical name, formula, expiration date, storage requirements, and primary hazards.

Storage

- ❑ Keep containers closed when not in use with threaded caps.
- ❑ Segregate incompatible chemicals by storing acids, bases, and flammable liquids in separate cabinets, and separating oxidizers, pure metals, reactives from other compounds on shelves. Consult your chemical supplier for suggested systems for chemical storage.
- ❑ Store chemicals so that labels are visible.
- ❑ Ensure chemicals are stored in appropriate storage cabinets. Store flammable liquids in certified flammable storage cabinets and acids in corrosion resistant non-metal cabinets. Store volatile chemicals requiring refrigeration, in explosion-proof refrigerators. A spark from the thermostat or light switch in a traditional unit could be enough to set off volatile fumes from the chemical and cause an explosion.
- ❑ Store chemicals at or below eye level (but not on the floor).
- ❑ Never stack chemicals top of each other.
- ❑ Stock small quantities of chemicals. Small bottles are less likely to break than large ones.

Chemical storage area. Acid fumes can eat away at metals. Note corrosion residue below metal shelf holders.

- ❑ Monitor the integrity of shelves. For example, are the chemicals too heavy for the shelf? Is the shelf sagging? Do the shelves show signs of wear? Are support clips corroded?
- ❑ Use secondary containment for liquids in storage to contain spills. Ensure the materials in a secondary container are compatible with each other and with the containment tub.
- ❑ Anchor storage cabinets to walls and doors so that earthquakes or other hazards do not topple cabinets.
- ❑ Monitor chemical containers to ensure container integrity remains intact. Signs of wear may include bulging, cracks, leaks, or rust.
- ❑ Monitor container tops for cracks, especially on bottles of nitric acid. Replace if degraded.

- Monitor volumes of chemicals. If chemical reductions are noted, this could be a sign of evaporation or theft.
- Monitor the stored chemical for crystal buildup or formation of a liquid above a solid. These could indicate a leaking cap or the formation of potentially unstable and dangerous by-products. If hazardous potential is unknown, contact a local hazardous waste management company (look in phone book under Environmental Services) or the State Communications Center (800) 632-8000 for assistance.
- Monitor expiration dates on chemicals. Use chemicals on a first-in, first-out basis to prevent accumulation of expired materials.

Security

- Lock chemical cabinets or storage rooms to prevent theft.
- Restrict student access to chemical cabinets and storage rooms.
- Monitor chemical volumes. Unanticipated reductions in volume could be a sign of theft.
- Conduct routine inventories of chemicals and chemical wastes.
- Provide copies of updated chemical inventories to school management and the local fire station.

Other

- Ensure staff are trained in the hazards of chemicals, spill clean up response, and safety procedures.
- Have Material Data Safety Sheets (MSDSs) onsite for all chemicals.
- Purge unneeded, older chemicals yearly to prevent chemical stockpiles.

Cracked cap.
Monitor caps and replace when worn to prevent evaporation, leaks, and spills.

In an emergency:
Call 911 or the Idaho State Communications Center (1-800-632-8000)
Idaho's State Communications Center coordinates a 24-hour network of local emergency response professionals. The Center coordinates dispatching state resources to hazardous material emergencies. In case of a chemical emergency, such as discovery of an explosive or unstable chemical or an unmanageable chemical spill, call 911 and the State Communications Center.